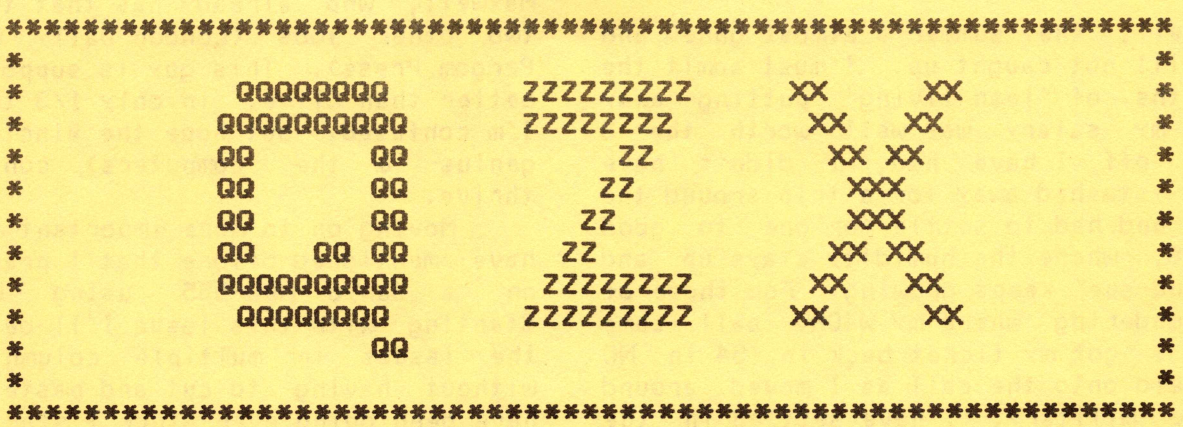


The Journal Covering Amateur Radio & Sinclair Computers
ZX-80; Micro-Ace; ZX81; T/S 1000, 1500, & 2068

2025 O'Donnell Drive
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88001

K5XY
Alex. F. Burr
Publisher

W4GHV/5
Bo Barry
Editor

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## Editor's Doings -W4GHV

Well, the summer's almost gone and I'm still not caught up. I must admit the 9 months of 'lean living' putting away 1/4of my salary was well worth the 3 months off I have had. I didn't have enough stashed away for a trip around the world and had to settle for one to good old NC, where the humidity stays up and the 'cud-sue' keeps growing. For those of you wondering where my W4GHV call came from, I got my ticket back in '54 in NC and held onto the call as I moved around in the military. I have settled in the desert where mother nature does her job best with the weather, and I usually sign "stroke 5 forever". (My NC wife has different dreams).

For those of you not taking the Wall Street Journal (me included), here's a bit from a May 29th article (courtesy of Tom-AD1B). Heading: **Sinclair Seeks A Successor to Sir Clive.** This upsets me; how a genius who starts from scratch, computerizes the world (more or less), can get 'kicked' out of HIS own company. It totally escapes me.

Now, Clive is not a businessman, just an engineering genius. He owns 85% of the business and the remaining 15% (businessmen I suppose) want to get rid of him. I wish I could simply reprint the article, but I can see the Wall Street Headlines: "Wall Street Sues QZX!" I bet that would tumble the stock market (and get Alex mad at me too.)

Anyhow, Sinclair isn't making as much money as the greedy 15% would like to see it make, so they want a new leader and some fresh money. Poor Clive's share of the British computer market was ONLY 43% last year. I also read that England has the world's largest computer to person ratio (I forgot the proper way of stating it). Only 60,000 QL's have been sold so far, according to the article. Their flat screen TV, which sells for about $125, is selling 10,000/month and the 15% 'majority' want to sell 40,000/month.

Excuse my harshness, I always root for the underdog at football games too.

FLASH: Just read in August Byte magazine: **"Sinclair Rescued from Bankruptcy: Sir Clive Loses Clout.** Well, someone came along with a big checkbook and Sir Clive surrendered his controlling interest and parted with his chairmanship. He is Sinclair's Lifetime President and will be a research consultant. He will land up owning between 8-23% of the stock in the company he created. Maybe he's the only smart one, who knows?

The new Board Chairman is Robert Maxwell, who already has that title for two other jobs (London Daily Mirror & Pergom Press). This guy is supposed to do better than Clive, in only 1/3 the time? I'm confused, but hope the Sinclairs (the genius & the computers) continue to thrive.

Moving on to more important topics, I have mentioned before that I prepare QZX on a Sanyo MBC-555 using WordStar. Starting with this issue I'll be printing the issues in multiple column format without having to cut and paste like I have been doing ever since I started using WordStar. If any of you are interested in the technique, drop me a SASE asking for the multiple column printing tips for WordStar. Actually, I have two methods, having just received another way of doing it. The second one looks interesting and I may try it. I'll send info on both methods.

**QZX Index Available** - As most of you know, QZX wouldn't have thrived as long as it has without the MANY contributions of Kraig, KA2LHO. Bob, WA6DLI is running a close second. Well, Kraig has taken the task of creating an index of all articles that have appeared in QZX. A lot of you newcomers have asked about back issues and unfortunately, not many are left. I wish we had a solution to the back issue problem, but there are not enough requests at a time to warrant trips down to the local copying store. I didn't even pay for my gas on the last trip I made! Maybe Alex & I can come up with a solution.

The QZX index is available from Kraig FREE if you will send a tape and enough stamps for return postage. Be sure to specify which computer you have. The Pro-File version for the 2068 has a counting and search funtion and I was pleased to see the W4GHV 'count' of 51 and a K5XY 'count' of only 35. Kraig also publishes a nice 'catalog' of all the programs he offers (at a very reasonable rate).

**QL vs Atari ST** - Maybe this will turn into a race after all. A recent review of the new Atari ST in Computer Shopper left me cold. It sounds like a half-baked computer and the adventuresome will find themself sending it back for retrofits, improvements, etc. The Commodore Amiga looked a lot more impressive, but it is priced too high to be 'the big one'.

**Packet Radio** - The local ham club has a habit of calling on me to give presentations at the local meetings. During the last call I had stated that I had an interest in packet radio and that I

would gladly share the information as soon as I actually knew something about it. Well, the next issue of the local club newsletter had me set up to give a talk! After buying the program chairman a new hearing aid, I stepped up my quest for knowledge about packet radio. I have a pretty good collection of past ham articles, some info from AEA (including a video tape on the way) and GLB Electronics, have joined the Florida FADA group, and plan to contact the TAPRS (Tucson) for info on their new board. If anyone has information you think I have missed and may find of value please send it. I will have an article about it in a later issue. The Sinclair is a good candidate for this interesting mode of communication. You will need an RS-232 interface, a TAPR board, & a VHF rig (some HF activity is going on). I have an old homebrew RS-232 interface one of my students build from an old Sync magazine article that would be cheap to build, and have seen some commercial RS-232 interfaces for the Sinclair, but haven't been impressed by their prices. More details later.

**T-S Horizons** Magazine - a lot of you took advantage of my special deal on the sample issues of the magazine. I didn't know at the time I wrote it up that they were sending me a whopping 3 oz. issue that cost an arm and a leg for postage! Anyhow, the issue was interesting and I trust you enjoyed the freebie.

Received from Guillermo Garcia, LU8MAD (Cabildo 584, (5521) Mendoza, Argentina), was an excellent, lengthy article/program on how to wind your own power transformers. It covers everything. Rather than print it, I'll offer to send it to those interested if you will send a long SASE and a few stamps. Also, he sent along some interesting info on the TX 85 computer. It was interesting to find that Brazil & Argentina have their own variations of the Sinclair line. I have retyped his comments below and will put the interesting comparison chart and picture elsewhere in this issue. Sorry, price and availability information was not given, you will have to write Guillermo.

### TK 85 - New Kinsman in Sinclair Family

The Timex Sinclair 1000 was essentially a Sinclar ZX 81, except for an extra onboard 1K RAM memory. Appealing as the price was, the machine quickly revealed itself to have several flaws - the membrane keyboard, the RAM pack wobble, the cantankerous cassette storage circuitry. Soon, however, Timex modified the 1000 with the redesigned TS1500.

Now, Microdigital of Brazil redesigned the old TK 83 (TS 1000) for the Latin Americal market. The Microdigital TK 85, is an inexpensive computer with an impressive array of features. It comes in a Sinclair Spectrum-style (high impact plastic) case, with soft rubber (small calculator type) keys.

Likewise, the TK 85 comes with 16K RAM and 10K ROM. The loading and saving facility for cassette operation is vastly superior to that of the TS 1000/ZX81 or TS 1500, with two speeds (300 baudot & 4200 baudot) for normal & high speed. The available peripherals include an Atari-style joystick, sound synthesizer, RS232 & centronics interfaces, EPROM programmer and 64K RAM.

The TK 2000 (PAL color) is the Brazilian version of the Sinclair ZX Spectrum and is coming soon to the Argentine market. IN SYNTHESIS- the Microdigital TK 85 is now the best upgrade version of the TS 1500 in the Sinclair Family.. (thanks Guillermo..)

### Calculating Repeater Intermod Freqs
### Miss Leslie Varnicle, WA3QLW

After being called an OM by Alex in an earlier issue, Leslie (YL) has retaliated and sent us a program to help calculate repeater intermod frequencies. She indicated its print out is easier to read on a full size printer. The program run time depends upon the number of frequencies you put in. With 50 xmit & 50 rcve freqs, it takes about one hour to run! The program listing is elsewhere in this issue.

### TS 2068 Computers For Sale

Alex & I have a limited number of brand new, complete TS 2068s for sale. They have been checked for operation, and are ready to go. The price is a mere $99.95 plus $5.00 postage. Please rush your orders, I am tempted to keep one, but I would have to buy another computer desk first! Send orders to the QZX address on the cover.

### Figaro II - "Review"
### Bob Howard, WA6DLI

Bob sent us some impressive plots and graphs of a program that's available from Curry Computers, 5344 W. Banff Lane,

Glendale, AZ 85306 (602-978-2902). The price is $12.95 postpaid. It is a terrific statistics and graphing program for the Spectrum adapted to the TS-2068. It did have a bug, the UDG load for defining the lines around the graphs was omitted. Lines 10-73 below should be added. An avid ham could use the programs to plot the number of QSOs they make per day or whatever. Weather experts could of course plot the weather data. The average person could use it to create impressive plots of random data to decorate the ham shack. Sample plots are included elsewhere in this issue.(Thanks Bob..)

```
 1 REM !i\ THEN  OVER  <>
 2 REM VERSION 1.3
 3 REM -program"FIGARO"
 4 SAVE "FIGARO" LINE 10
10 POKE USR "a",BIN 11111111
11 POKE USR "a"+1, BIN 10000000
12 POKE USR "a"+2, BIN 10000000
13 POKE USR "a"+3, BIN 10000000
14 POKE USR "a"+4, BIN 10001111
15 POKE USR "a"+5, BIN 10001000
16 POKE USR "a"+6, BIN 10001000
17 POKE USR "a"+7, BIN 10001000
18 POKE USR "b", BIN 10001000
19 POKE USR "b"+1, BIN 10001000
20 POKE USR "b"+2, BIN 10001000
21 POKE USR "b"+3, BIN 10001111
22 POKE USR "b"+4, BIN 10000000
23 POKE USR "b"+5, BIN 10000000
24 POKE USR "b"+6, BIN 10000000
25 POKE USR "b"+7, BIN 11111111
26 POKE USR "c", BIN 00010001
27 POKE USR "c"+1, BIN 00010001
28 POKE USR "c"+2, BIN 00010001
29 POKE USR "c"+3, BIN 11110001
30 POKE USR "c"+4, BIN 00000001
31 POKE USR "c"+5, BIN 00000001
32 POKE USR "c"+6, BIN 00000001
33 POKE USR "c"+7, BIN 11111111
34 POKE USR "d", BIN 11111111
35 POKE USR "d"+1, BIN 00000001
36 POKE USR "d"+2, BIN 00000001
37 POKE USR "d"+3, BIN 00000001
38 POKE USR "d"+4, BIN 11110001
39 POKE USR "d"+5, BIN 00010001
40 POKE USR "d"+6, BIN 00010001
41 POKE USR "d"+7, BIN 00010001
42 POKE USR "e", BIN 10001000
43 POKE USR "e"+1, BIN 10001000
44 POKE USR "e"+2, BIN 10001000
45 POKE USR "e"+3, BIN 10001000
46 POKE USR "e"+4, BIN 10001000
47 POKE USR "e"+5, BIN 10001000
48 POKE USR "e"+6, BIN 10001000
49 POKE USR "e"+7, BIN 10001000
50 POKE USR "f", BIN 00010001
51 POKE USR "f"+1, BIN 00010001
52 POKE USR "f"+2, BIN 00010001
53 POKE USR "f"+3, BIN 00010001
54 POKE USR "f"+4, BIN 00010001
55 POKE USR "f"+5, BIN 00010001
56 POKE USR "f"+6, BIN 00010001
57 POKE USR "f"+7, BIN 00010001
58 POKE USR "g", BIN 11111111
59 POKE USR "g"+1,00000001
60 POKE USR "g"+2;00000001
61 POKE USR "g"+3;00000001
62 POKE USR "g"+4, BIN 11111111
63 POKE USR "g"+5, BIN 00000000
64 POKE USR "g"+6, BIN 00000000
65 POKE USR "g"+7, BIN 00000000
66 POKE USR "h", BIN 00000000
67 POKE USR "h"+1, BIN 00000000
68 POKE USR "h"+2, BIN 00000000
69 POKE USR "h"+3, BIN 11111111
70 POKE USR "h"+4, BIN 00000000
71 POKE USR "h"+5, BIN 00000000
72 POKE USR "h"+6, BIN 00000000
73 POKE USR "h"+7, BIN 11111111
75 POKE 23658,8
79 GO TO 80
```

## PUBLISHER'S NOTES

Well, I am back at the local computers again and can do my share in putting out QZX. Bo has been doing twice the work while I have been working in Bangladesh and attending a computer conference in Italy. In Bangladesh my duties included trying to repair a PDP-11 and an Apple. I had more sucess with the latter than the former. I also talked some people out of putting a radio controled fire alarm on 1 Mhz. While in Vienna (or Wein as they call it) I was able to operate 4U4VIC for a little while. That was fun. I was not able to get permission to operate in Bangladesh because that trip was organized on less than one week's notice.

I noticed that the Spectrum computers were being actively sold in Great Britain, Austria, and Italy, the only European countries visited. They are, however, no longer the most widely available ones. Europe has undergone a magazine shakeout out too, and many of their magazines, including some Sinclair magazines, have disappeared from the newsstands. There is a lot of speculation about Sinclair's intentions and finacial stability in the newsmedia too.

I was able to speak to some satisfied QL users and was able to try out the new keyboards on the Spectrum+ and the QL. These keyboards are similar but not exactly alike. I think the key mechanism is the same, but the keytops are slightly different. On the Spectrum+, the dish shaped finger depression is a little different; because much more room is needed for the labels. If your typing is just a bit sloppy, you can feel the square edge of the keytop on the row beneath the one you are using. This is a bit disconcerting, but the other key usually in not activated. This inconvenience was not felt on the QL. The keyboards are not of the highest quality, although they are an improvement over what was available. On the Spectrum+ and one of the two QL's which I tried out, the keys tended to bind a bit if they were not struck very near the center. This trouble was particularly noticeable on the return key. The QL software was certainly colorful and versatile.

Well, so much for my notes. Now to the task (never ending) of trying to get QZX back into the correct month. Keep those programs and referrals coming.

## QZX FRIENDS

SM0CHA -- Charlie has been a radio operator at sea for many years and is now on land using a SB 104A and SB 230

amplifier and is looking for RTTY ROMS for his Spectrum.

KA2MWS -- Mike has the cw/ss code program which works fine on 80 and 40 but he is having RFI problems on the higher bands.

WD0DCK -- Anthony sent a nice long letter stating that he has had a little more time to get on the air with his HW-7 and to learn to program his T/S 2068 since he ran into the back of a car on his 10-speed bike.

W3IJR -- James is now out of the hospital and has renewed with a request for back issues.

W5JEN -- Joe has been taking computer courses at Amarillo College and using his surplus bargain T/S programs obtained from BNF Ehterprises, 119 Foster St, Box 3357, Peabody, MA 01961-3357.

KA0P -- Dave renewed and said that his T/S 1000 does not get much use right now, but that he still enjoys the QZX programs which you send in.

K9UGX -- Jim has acquired the Aerco CP-ZX interface and a C Itoh printer, also the Aerco FD-ZX disk interface and disk drive. He is now in the process of putting KA2LHO's county hunting programs on disk.

W1MDZ -- Stan really liked (along with several others) the satellite program supplied by WA3FYZ.

W6ISO -- Kit says that his ZX81 does alll he needs with RTTY, satellite, logging and what ever other programs come along. He is looking for more T/S 1000 or ZX81 programs.

WA9ESX -- Mike is still using his T/S 1000 on RTTY. He has one set up in the Radio Shack steel case and a TI99 keyboard.

WB4DLU -- Charlie sends us some much needed net update info (printed elsewhere) and discribes his super set up. He has Two 2068's, one 1500, four 1000's, a 2040 printer, a 2050 modem, dual drive Rotronics Wafadrive, a BW moitor, and a color monitor. He also has a TV receiver to go with his NU4V cw set up. He wrote his letter on a STAR SG printer with a Spectral word processor.

## UNCLASSIFIED ADS

WANTED: UNCLASSIFIED ADS for publication in QZX. Cost is 1 cent for each keystroke (characters, blanks, etc.). Payment must be included with order. This is an excellent way to sell your program or unwanted equipment, ask for help, or find a specific program. Send your ad with payment to QZX, 2025 O'Donnell, Las Cruces, NM 88001.

FOR SALE: ZX81/TS1000 edgeboard wire-wrap connectors; keyed; bifurcated contacts; manufactured by TI; $5.00 each. Pc piggy-back extender boards; $1.50 each. Economical experimenting with Radio-Shack's 276-158 and 161 project boards and these connectors. Add $0.75 shipping per order. Paul Hunter, 1630 Forest Hills Drive, Okemos, MI 48864.

FOR SALE: IMPROVED Chebyshev/ Butterworth filter design program. Listing $1, cassette $5. C. Milazzo, USNS Box 3007, FPO Miami FL 34051.

WANTED: TS1500 or TS1000/ZX81 new or mint. No RAM needed. WA9SEX, 5305 North 35th St., Milwaukee, WI 53209.

FOR SALE: 2 Memotech 16K RAMs $13 each. Gladstone 64K bareboard + doc. $5. ZX FORTH $12. TINY LOGO $10. Berch assem/dissassenbler on EPROM in cartridge $35. Hunter EPROM reader w/Delphic Toolkit EPROM; can be easily set up for NVM $30. AF8J 2K RTTY/ASCII software, hardware and terminal. Needs connector and case $25. DAYTAPRO toroid filter kit. NEW $10. EXAR 2211 one chip decoder. Good SWL terminal on R/S protoboard $10. All prices PPD. Please money orders only; SASE please with correspondence on trades, packages or availability, WA9SEX, Mike,5305 N 35, Milwaukee, WI 53209.

FOR SALE: T/S 2040 printer, power supply, 8 rolls paper- postpaid - 2 units $55 each - K9UGX, Box 1384, Richmond, IN 47375.

FOR SALE: CWSS users! MLI 2.0 premits QSK operation without prompting and can save Rx text for review on the screen or hard copu. Send $12.50 for MLI 2.0 or SASE for info sheet. John McGinley N9BBN/203 Milwaukee St./Mauston, WI 53948

FOR SALE: ASTRONOMY PROGRAMS (TS-2068) for astronomers, navigators, science classes, etc. Compute position of Sun, Moon, planets for any date; Find dates & times of moon phases solar & lunar eclipses; Sunrise/sunset times; Equinoxes/solstices (seasons); Julian Day; Sidereal time, & 14000 year calendar. Complete set on tape (with manual) $14.95 - I. Auersbacher, 41 King Street A2, Belleville, NJ 07109.

# MORE MFJ-1224 AND NU4V TTY/CW HINTS

By Jon Harder, OE2ZDL (K1US)

Reading KE6WB's comments in the April '85 issue reminds me that I haven't yet sent in a few observations of my own after using NRAP and CWSS with the 1224 for some time.

1. I found it impossible to connect the RT-1A to the 1224 as recommended. Receiving worked OK, but for transmitting I had to put a PNP transistor across SOUT and add a pullup resistor across the collector to get HI TTL out on Mark.

2. As with KE6WB's note, the PTT line was also a problem. I had to change the 2N222 to a universal PNP type and add an external pullup resistor, as there is otherwise no voltage present on the line to do anything. DIP switches 5,7,&8 of the 1224 have to be set ON, and all others OFF. Maybe I missed something in the instructions, which are otherwise excellent, but these few changes gave me reliable control voltages. A stereo patch cable, 5 pole DIN type, makes a neat connection.

3. As received from MFJ the 1224's AFSK tones were badly out of alignment. To get on the air I did the best I could to match the receive tones, which were not too far off. ( I don't own or have access to a calibrated audio oscillator or counter. ) Then QZX came to the rescue with the dandy audio frequency counter program in the October '84 issue! By setting the transceiver for a calibrator tone first at 2125hz, then 2295 hz by the counter I was able to set the 1224's tones for an identical sine wave pattern on my Heath SB614 monitor scope. (These tones were recorded on cassette for safe-keeping and later use, and also checked with the tone-generator in my new TRS-80 model 100.) Also, my TS-830s has a Monitor output which I leave on while sending RTTY, and I find the MFJ-1224 responds to my tones with blinking LED just as it would to an incoming signal. So I have an instant check on the AFSK frequencies.

4. Note that the MFJ-1224 will absolutely NOT produce AFSK if the normal-reverse switch is in the reverse position. This is a receive only function.

5. Using the 1224 on CW with the NU4V CWSS required digging into the little NU4V I/O board and picking up TTL levels, bypassing the audio demod completely. I found LOW for receive at pin 2 of the 74LS367, and HI TTL for keying at pin 5 of the 74LS74. This worked like a charm the first time, and I have had much less RFI from the computer than when using the regular audio input to the I/O board.

6. Until I read Dave Ingram's review of the 1224 in the Nov. '84 issue of CQ I did not realize why I was having so much trouble copying CW on the TU. His review says the MFJ instruction sheet explains how to tune CW at 2295 hz. Not so in my copy, which is probably an early issue. Guess I thought it had another CW filter, which is not the case. I use CWSS mainly as a transmit keyboard anyway, but it's nice to be able to display received CW for visitors.

7. It is not always necessary to disable the internal transceiver IF filters to use the 1224 on CW, as Dave's review states. With a TS-830S I found it necessary only to turn the IF shift full clockwise and keep the VBT full open to use the 500hz filters as installed. The tone isn't peaked as high as 2295, but it works very well anyway.

8. Anyone wanting info on using the TS-830S sharp CW filters on TTY in LSB position can write to me ( with an SASE please) at Box 32, APO NY 09029.

9. It is quite practical to keep the RT-1A and CWSS boards both connected to the computer. There is no addressing conflict. I've found this order is good, working outward from the computer (TS/1000) edge connector: RT-1A; Memotech Centronics Interface; CWSS I/O; Memotech 32K memory pack goes on last.

10. The super article in SYNC, (March/April'84, p.64) on recovering the built-in 2K TS/1000 memory for use from address 8192 has made it possible to locate ZXLR-8 at this address without a Hunter Board or 64K memory module. Now I go from NRAP to CWSS and back inside a minute, if necessary.

Finally, I'm still very impressed with the super way in which NU4V's programs and hardware work in practice. NRAP in particular is smooth and reliable in a way I never thought possible. I keep one TS-1000 in metal keyboard enclosure permanently ready to go with NRAP loaded. It can go for weeks without a crash or overheating. What a great system at an incredibly low price. ZX81/TS1000 RTTYers owe Cliff a lot more than the small amount he asks for this excellent product.

## RTTY TUNING INDICATORS

Lots of nifty new products are coming out for tuning RTTY audio tones. Since my MFJ-1224 has no scope outputs, I was delighted to see Phil Anderson's single-ended phasing adapter in CQ, Nov.'83. This was a great help, and I still use it on both CW and RTTY. The circles are fun to watch and give a useful relative indication of tuning to supplement the "blinking" LEDs. WOXI's adapter does even better if sharp filtering is in use. But I still missed the precision of a real cross-pattern scope display.

Not being able to afford the luxury of that, I tried using my scope in a simple audio sweep pattern. I set the sweep so that the MARK tone, 2125hz gives a clean three-cycle sine wave. This means that SPACE will show up out of sync, but you can very easily fine tune to get the same relative pattern heights. This does the job at least as well as a cross-pattern. Tuning the MARK signal in exactly is a bit tricky at first, but now that I've gotten the hang of it, it gives an extremely precise indication of the signal. You could always set the sweep on the scope to stabilize the 2295hz SPACE signal if you prefer, but I find the MARK tone is easiest. My Heath Monitor Scope drifts just a bit for the first 15 minutes, but after that the pattern is rock steady if the signal is properly tuned. This trick should work with any scope without any adapters needed!

Jon, OE2ZDL (K1US)


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**Belleville, NJ 07109**

## NET NEWS

We have had some net news but could use more up-to-date news of nets of interest to Sinclair users. Even two meter net info is of use to our readers.

QZX Net .. Wednesdays, 9 PM EDT; 14.345 MHz with NV4F as NCS.

Eastern Regional Sinclair Net .. Sundays, 1100 hours local (presumably Eastern) time; 7.240 (or thereabouts) MHz with WD4DLU as NCS.


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When ordering please indicate on which computer model the program will be used (ZX81/TS1000/TS1500 or TS 2068/Spectrum).

==========

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YAGI ANTENNA DESIGN:aids you in designing Yagi type antennas and shows diagram.....$8.00

NOVICE EXAM KIT:generates random FCC type Novice written exams---for practice or actual testing. 4 programs and 12 page booklet of documentation.....$20.00

CONVERSIONS:metric conversion of units of capacitance, inductance and frequency.....$8.00

==========

15 Ham programs in all PLUS 4 additional non-ham programs on scanners, budgeting, and music theory. Additional miscellaneous hardware items also listed. Send SASE for complete updated list.

==========

FREE QZX newsletter Index
Large SASE for details!

==========

CompuServe User ID #74676,3320

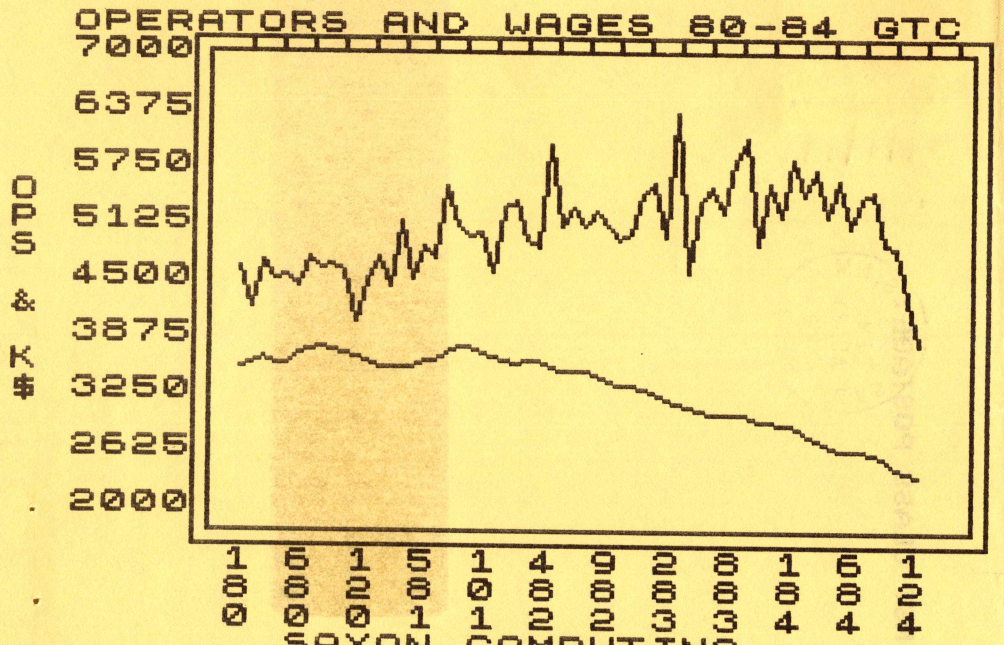
REPEATER INTERMOD PROG.

```
    1 REM 2068 version. to use on
 TS-1000 add lines 835 fast 1060
 slow. Remove "line 2010" in
9998, add line 9999 goto 2010
    2 REM By Miss Leslie Varnicle
 WA3OLW June 13, 1985
   10 FOR L=1 TO B
   15 LET R=VAL R$(L)
   20 IF V<R-W OR V>R+W THEN GO T
O 35
   25 IF T=R OR P=R OR S=R THEN G
O TO 35
   30 LPRINT T;TAB 10;P;TAB 20;S;
TAB 30;V;TAB 31+20;R$(L)
   35 NEXT L
   40 RETURN
   45 FOR L=1 TO B
   50 LET R=VAL R$(L)
   55 IF V<R-W OR V>R+W THEN GO T
O 70
   60 IF T=R OR C=R THEN GO TO 70
   65 LPRINT T;TAB 10;C;TAB 24;V;
TAB 31+5;R
   70 NEXT L
   75 RETURN
  600 LPRINT "3RD ORDER FOLLOWS"
  610 LPRINT
  630 LPRINT " F1";TAB 10;"F2";TA
B 22;"IM PRODUCT";TAB 31+5;"VICT
IM"
  631 LPRINT
  640 FOR Q=1 TO A
  645 LET T=VAL T$(Q)
  650 LET P=T*2
  660 FOR M=1 TO A
  665 LET C=VAL T$(M)
  668 IF T=C THEN GO TO 690
  670 LET V=P-C
  680 GO SUB 45
  690 NEXT M
  700 NEXT Q
  720 LPRINT
  730 LPRINT
  740 LPRINT
  750 LPRINT "5TH ORDER FOLLOWS"
  755 LPRINT
  760 LPRINT " F1";TAB 10;"F2";TA
B 22;"IM PRODUCT";TAB 31+5;"VICT
M"
  765 LPRINT
  770 FOR Q=1 TO A
  780 LET T=VAL T$(Q)
  790 LET P=T*3
  800 FOR X=1 TO A
  810 LET C=VAL T$(X)
  815 IF T=C THEN GO TO 850
  820 LET E=C*2
  830 LET V=P-E
  840 GO SUB 45
  850 NEXT X
  860 NEXT Q
  870 LPRINT
  880 LPRINT
  890 LPRINT
  900 LPRINT "3 SIGNAL 3RD ORDER
FOLLOWS"
  910 LPRINT
  920 LPRINT
  930 LPRINT "F1";TAB 10;"F2";TAB
  20;"F3";TAB 30;"IM PRODUCT";TAB
  31+20;"VICTIM"
  940 LPRINT
  950 FOR N=1 TO A
  960 LET T=VAL T$(N)
  970 FOR M=1 TO A
  980 LET P=VAL T$(M)
  985 IF T=P THEN GO TO 1040
  990 FOR Q=1 TO A
 1000 LET S=VAL T$(Q)
 1005 IF T=S OR P=S THEN GO TO 10
30
 1010 LET V=T+P-S
 1020 GO SUB 10
 1030 NEXT Q
 1040 NEXT M
 1050 NEXT N
 1070 LPRINT
 1080 LPRINT
 1090 LPRINT "END OF PROGRAM"
 1100 STOP
 2010 PRINT AT 11,6;"INTERMOD PRO
GRAM"
 2011 LPRINT TAB 8;"INTERMOD PROG
RAM"
 2015 PAUSE 500
 2020 CLS
 2030 PRINT " INPUT SITE NAME"
 2040 INPUT Z$
 2050 LPRINT TAB 8;Z$
 2060 LPRINT
 2070 LPRINT
 2080 LPRINT
 2100 PRINT "HOW MANY TX FREQS?"
 2110 INPUT A
 2120 CLS
 2125 LPRINT Z$;"  ";"TX FREQS"
 2126 LPRINT
 2130 PRINT " INPUT TX FREQS"
 2135 DIM T$(A,8)
 2140 FOR N=1 TO A
 2150 INPUT T$(N)
 2155 LET T=VAL T$(N)
 2160 PRINT N;" ";T
 2165 LPRINT N;"  ";T$(N);"MHZ"
 2170 NEXT N
 2180 CLS
 2185 LPRINT
 2190 PRINT "HOW MANY RX FREQS?"
 2200 INPUT B
 2205 LPRINT
 2210 CLS
 2215 LPRINT Z$;"  ";"RX FREQS"
 2216 LPRINT
 2220 PRINT " INPUT RX FREQS"
 2225 DIM R$(B,8)
 2230 FOR I=1 TO B
 2240 INPUT R$(I)
 2250 PRINT I;" ";R$(I)
 2260 LPRINT I;"  ";R$(I);"MHZ"
 2270 NEXT I
 2280 CLS
 2290 PRINT " INPUT RX BW IN KHZ"
 2300 INPUT W
 2305 LPRINT "+- ";W;" KHZ BANDWI
DTH"
 2310 LET W=W/1000
 2320 CLS
 2330 LPRINT
 2340 GO TO 600
 9998 SAVE "intmod" LINE 2010
```

| | ROM | RAM | KEYBOARD | SOUND | DISPLAY PIXEL'S | COLOR | JOYSTIC PORT | SAVE/LOAD VEL. BAUDIOS | OBSERV. |
|---|---|---|---|---|---|---|---|---|---|
| ZX80 / MICRO ACE | 4K | 1K | SOFT TOUCH | - | 44 x 64 | B & W | - | | |
| ZX81 | 8K | 1K | SOFT TOUCH | - | 44 x 64 | B & W | - | 300 | |
| TS 1000 | 8K | 2K | SOFT TOUCH | - | 44 x 64 | B & W | - | 300 | |
| TS 1500 | 8K | 16K | SOFT RUBBER * | - | 44 x 64 | B & W | - | 300 | |
| CZ 1000 | 8K | 2K | SOFT TOUCH | - | 44 x 64 | B & W | - | 300 | |
| CZ 1500 | 8K | 16K | SOFT RUBBER * | - | 44 x 64 | B & W | - | 300 | |
| CZ 2000 ESPECTRUM | 16K | 16K | HARD PLASTIC | YES | 256 x 192 | PAL N | - | 1500 | (ASCII) |
| TK 82, TK 83 | 8K | 2K | SOFT TOUCH | - | 44 x 64 | B & W | - | 300 | |
| TK 85 | 10K | 16K | SOFT RUBBER * | OPTIONAL | 44 x 64 | B & W | YES | 300 / 4200 (1) | |
| TS 2068 | 24K | 48K | STANDARD | YES | 256 x 192 | NSTC | YES | 1500 | (ASCII) |
| ESPECTRUM ZX | 16K | 16/48K | PUSH BUTTON | YES | 256 x 192 | PAL | YES (2) | 1500 | (ASCII) |
| TK 2000 | (?) | (?) | (?) | (?) | (?) | PAL B | (?) | (?) | |

TK = BRAZIL (MICRODIGITAL) CZ = ARGENTINA (CZERWENY ELECTRONICA)

(*) small calculator type
(?) unknown
(1) two speed onboard
(2) with interface




SAXON COMPUTING
FIGARO II NUMERIC DATABASE

**** GRAPH PLOTTING OPTIONS ****

Press 1 BAR CHART

Press 2 LINE CHART

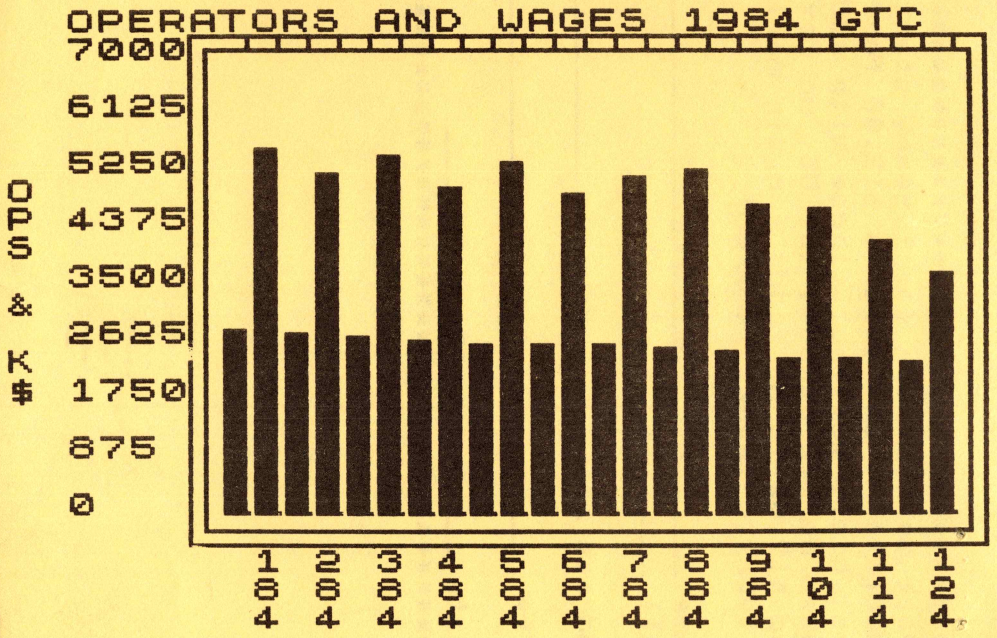
Press 3 PIE CHART

Press 4 MULTIPLE LINE CHART

Press 5 MIXED BAR & LINE

Press 6 CLUSTER BAR CHART

Press 7 RETURN TO MAIN MENU




SAXON COMPUTING
FIGARO II NUMERIC DATABASE

*** DATA UTILITIES OPTION 7 ***
DISPLAY A SERIES

SERIES 1 OPS8084

| PER | CONTENTS | LBL | VALUE |
|---|---|---|---|
| 49 | OP84 | 184 | 3020 |
| 50 | OP84 | 284 | 2967 |
| 51 | OP84 | 384 | 2897 |
| 52 | OP84 | 484 | 2822 |
| 53 | OP84 | 584 | 2757 |
| 54 | OP84 | 684 | 2766 |
| 55 | OP84 | 784 | 2747 |
| 56 | OP84 | 884 | 2710 |
| 57 | OP84 | 984 | 2671 |
| 58 | OP84 | 104 | 2565 |

Press N for NEXT BLOCK OF 10
Press X to RETURN TO MENU

73, W4GHV & K5XY

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